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(56) Documents cited

**GB A 2092534**

**GB 1505658**

**US 4105295**

**GB A 2048189**

**GB 1133005**

**US 3644021**

(58) Field of search

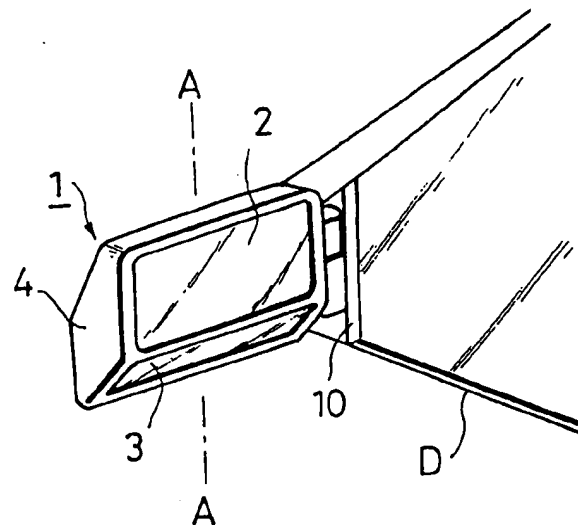
**B7J**

**Selected US specifications from IPC sub-class B60R**

(54) **Compound exterior rear-view mirror for a vehicle**

**Fig. 2**

(57) The mirror unit comprises a main mirror 2 for providing a general rearward view, and a secondary mirror 3 for providing a view of the lower side part of the vehicle, both mirrors being incorporated in a single unit.



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Fig.1

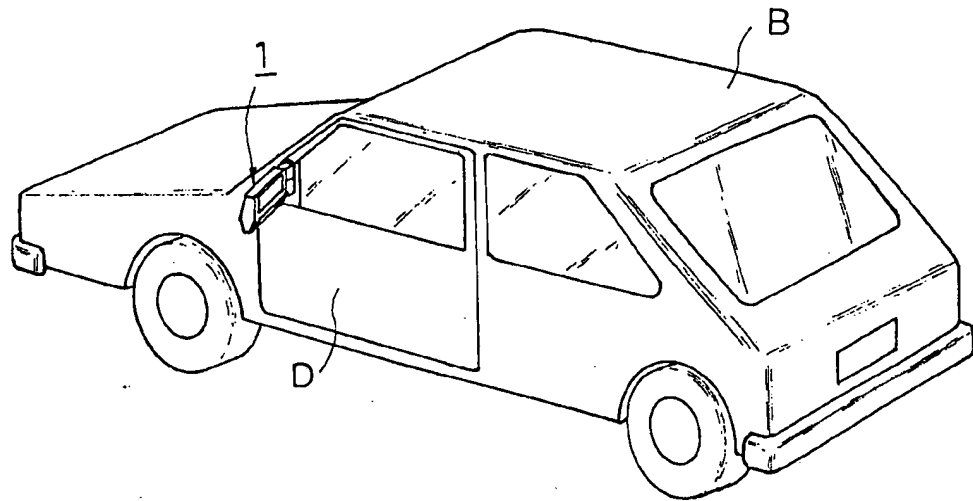


Fig.2

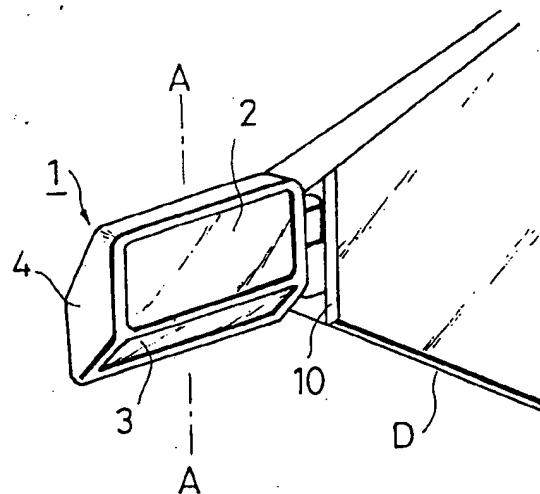


Fig.3

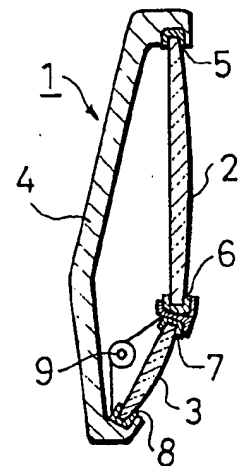


Fig. 4

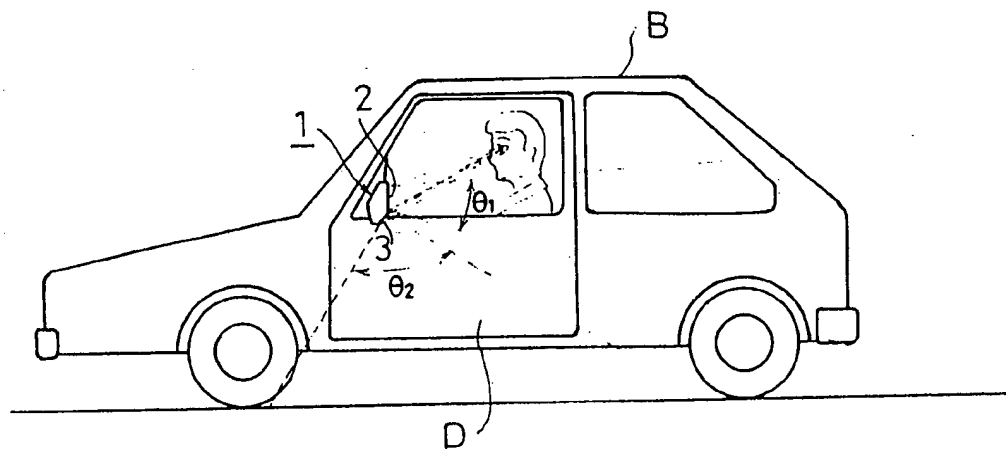
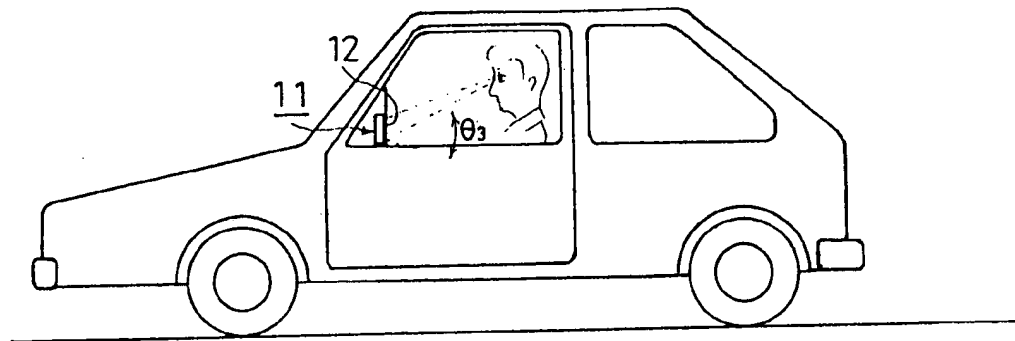


Fig. 5



## SPECIFICATION

### Vehicle rear-view mirror

- 5 This invention relates to an exterior rear-view mirror for a vehicle such as an automobile.

Conventional exterior rear-view mirrors, when properly adjusted, only provide a view of the upper side part of the vehicle in addition to a rearward view, and do not provide a view of the lower side part of the vehicle or of its wheels. It would be advantageous, particularly when the vehicle is being manoeuvred in a confined space such as a narrow road or in a garage, to be able to see the lower side part of the vehicle.

According to the present invention there is provided an exterior rear-view mirror unit for a vehicle, comprising a main mirror for providing a general rearward view, and a secondary mirror for providing a view of the lower side part of the vehicle, both of such mirrors being incorporated in a single unit.

Preferably the said mirror unit comprises an upper frame mounting the said main mirror and a lower frame mounting the said secondary frame mirror. Preferably a bottom member of the said upper frame is integral with a top member of the said lower frame.

30 Preferably the said secondary mirror is a concave mirror.

Preferably the said secondary mirror is arranged to provide a view of the lower central side part of the vehicle and at least part of the front and rear wheels.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

40 *Figure 1* is a perspective view of an automobile provided with an exterior rear-view mirror unit according to the invention;

*Figure 2* is a perspective view of the said mirror unit;

45 *Figure 3* is a cross-sectional view of the mirror unit, taken on the line A-A of Fig. 1;

*Figure 4* is a side view of the automobile of Fig. 1, illustrating the fields of view provided by the mirror unit; and

50 *Figure 5* is a side view of an automobile provided with a conventional exterior rear-view mirror, and again illustrating the field of view thereby provided.

Referring to the drawings, an automobile B has each of its front doors D provided with an exterior rear-view mirror unit according to the invention. Only the near-side mirror unit is illustrated, the off-side one being similar.

The rear-view mirror unit 1 contains a main mirror 2 and a secondary mirror 3. The main mirror 2 is arranged to provide a field of view similar to a conventional door-mounted mirror. The secondary mirror 3, which is a concave mirror, is of the same width as the main mirror 2 but is shorter.

2 and the secondary mirror 3 are mounted in grooves, 5, 6, 7 and 8 in a frame 4, the main mirror 2 being fixed between the grooves 5 and 6, and the secondary mirror 3 between the grooves 7 and 8 on the frame 4. A shaft bearing 9 provides the means for mounting the frame of the secondary mirror 3 on the main mirror 2. By means of the shaft bearing 9 the secondary mirror 3 can be moved in conjunction with the main mirror 2. A plate 7 is provided for mounting the mirror unit 1 to the door D.

Fig. 4 shows the fields of view when the mirror unit is in use. Firstly the rearward view reflected in the main mirror 2 in the area of the angle  $\theta$  can be viewed, and secondly the lower side part of the automobile, including the front and back wheels as reflected in the secondary mirror 3 in the area of the angle  $\theta_2$ , can be seen. Thus by using the main mirror 2 and the secondary mirror 3, the driver can see virtually everything except the view to the front.

Fig. 5 shows on the other hand the situation when a conventional rear-view mirror is used. Compared with Fig. 4, as the conventional mirror unit 11 has only the main mirror 12, the view is limited to the area of angle  $\theta_3$ . Therefore, it is not possible to see the lower side part of the automobile, nor the front and rear wheels.

It will thus be seen that the present invention, at least in its preferred forms, provides an improved rear-view mirror unit which is practical and can be produced in quantity at a low cost. The improved rear-view mirror unit, reflecting the lower side parts of a vehicle, makes it possible to park the vehicle easily in a garage, and to keep an appropriate distance away from the shoulder of a road or from a ditch. Furthermore, when a vehicle is being driven along the middle lane or the passing lane on a highway, it is helpful in enabling drivers to judge the driving situation, to avoid traffic jams, and to improve traffic safety.

It is to be clearly understood that there are no particular features of the foregoing specification, or of any claims appended hereto, which are at present regarded as being essential to the performance of the present invention, and that any one or more of such features or combinations thereof may therefore be included in, added to, omitted from or deleted from any of such claims if and when amended during the prosecution of this application or in the filing or prosecution of any divisional application based thereon.

### CLAIMS

1. An exterior rear-view mirror unit for a vehicle, comprising a main mirror for providing a general rearward view, and a secondary mirror for providing a view of the lower side part of the vehicle, both of such mirrors being incorporated in a single unit.

2. A mirror unit as claimed in claim 1, which unit comprises an upper frame mounting the said main mirror and a lower frame mounting the said secondary mirror.
- 5 3. A mirror unit as claimed in claim 2, wherein a bottom member of the said upper frame is integral with a top member of the said lower frame.
- 10 4. A mirror unit as claimed in any preceding claim, wherein the said secondary mirror is a concave mirror.
- 15 5. A mirror unit as claimed in any preceding claim, wherein the said secondary mirror is arranged to provide a view of the lower central side part of the vehicle and at least part of the front and rear wheels.
- 20 6. An exterior rear-view mirror unit for a vehicle, substantially as hereinbefore described with reference to Figs. 1 to 4 of the accompanying drawings.
7. A vehicle incorporating an exterior rear-view mirror unit as claimed in any of claims 1 to 6.

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